

CLAIMS

1. A process for the detection of the radiation emitted by the various components in a sample of a fluid wherein the radiation emitted by activated molecules within the sample of the fluid is used to determine the nature of and quantities of materials present in the fluid.
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2. A fluid analyser system comprising a receptacle(s) for the collection of a fluid sample and an analysis apparatus containing a consistent light condition compartment containing temperature detection device(s) into which the receptacle containing the fluid sample may be placed, means within the consistent light condition compartment for activating the molecules within the sample and means for detecting the radiation emitted by the sample, together with means for magnification of the detected signal.
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3. A fluid analyser system according to Claim 2 comprising means for translating the magnified signal into the nature and quantity of the fluids present in the sample said means being referenced according to:
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- 20 a) the known volume of the inflated receptacle
b) the light condition of the fluid sample
c) the temperature of the fluid sample
d) the duration of the radiation scan and/or
e) the distance of the radiation scan.
- 25 4. A fluid analyser system comprising:
 - i) A receptacle for a fluid sample.
 - ii) A consistent light condition environment in which the receptacle can
30 be placed.
 - iv) A timing device for measuring duration of the scan of the radiation emitted by the fluid sample in the receptacle.
 - v) A temperature sensor for determining the temperature of the sample.
 - vi) Means for activating the molecules within the sample.
 - 35 vii) Detector(s) for receiving data from the radiation emitted by the sample located at a predetermined distance from the sample.

viii) Means for translating and magnifying the signal from the detector(s) enabling identification of the intensities and the peak intensity values' wavelengths.

5 5. A fluid analyser system according to Claim 4 including a light meter for determining the consistent light condition environment.

6. A fluid analyser system according to any of Claims 2 to 5 in which the analyser system is non-invasive.

10 7. A fluid analyser system according to any Claims 2 to 6 that and transmits and/or receives test data remotely.

8. A fluid analyser system according to any of Claims 2 to 7 including one or
15 more of a visual display screen, a printer, a data transmitter/receiver, data storage, rechargeable/universal mains power supply, peripheral ports, keyboard, scroll bar, switches.

9. A fluid analyser system according to any of Claims 2 to 8 comprising a
20 database of fluids and their known wavelengths.

10. A fluid analyser system according to any of Claim 2 to 9 adapted to provide a comprehensive advisory status report of the fluids analysed with the appropriate reference data.

25 11. A fluid analyser system according to any of Claims 2 to 10 adapted to provide comparative analysis based on historical, virtual and/ or actual data.

12. A fluid analyser system according to any of Claims 2 to 11 which is portable.

30 13. A fluid analyser system according to any of the Claims 2 to 12 in which the walls of the receptacle have a high optical clarity and are flexible but not elastic.

35 14. A fluid analyser according to any of Claims 2 to 13 in which the receptacle is formed from a fluorocarbon polymer.

15. A fluid analyser according to any of Claims 2 to 13 in which the receptacle is formed from a medical grade polypropylene.
- 5 16. A fluid analyser according to any of Claims 2 to 15 in which the receptacle is provided with a one-way valve.
- 10 17. A fluid analyser according to any of Claims 2 to 16 in which the receptacle is provided with two one-way valves positioned to allow fluid to pass through the receptacle and to prevent the flow by sealing the contents of the inflated receptacle.
- 15 18. An analyser according to Claim 16 or Claim 17 in which the valve is in a valve holder which is shaped so that a fluid delivery tube, can be attached to the top of the receptacle.
19. A fluid analyser according to Claim 16 to Claim 18 in which the valve is in a valve holder which is shaped so that another receptacle or attachment can be attached to the bottom of the receptacle
- 20 20. A fluid analyser according to any of Claims 2 to 19 in which the shape of the inflated receptacle is such that it is a firm fit within the consistent light condition environment.
21. A fluid analyser according to any of Claims 2 to 20 containing means whereby the peak intensities and peak intensity values are used/calculated and/or correlated with known/unknown peak intensities and/or peak intensity values (nm wavelength values) to indicate the nature of the fluids present in the sample and to determine the concentrations of the fluids in the sample.
- 25 30 22. A process according to Claim 1 wherein the measurement of the radiation is magnified and the magnified signal used to identify the fluids present.
23. A process according to Claim 1 or Claim 22 in which the measurement is magnified using standard curve fitting and/or signal magnification techniques.

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24. A process according to any of Claims 1, 22 or 23 in which distortion and noise is removed from the measurement by a process of elimination referencing other known data.

5 25. A process according to Claim 24, in which the distortion removed, is distortion from the excitation device, other samples taken, the impact of the receptacle itself, the light environment compartment and the actual dark level reading.

10 26. A process according to any of Claims 1 and 22 to 25 in which multiple measurements are made of one or more samples and the result averaged.

27. A process according to any of Claims 1 and 22 to 26 in which at the time of analysis humidity is measured.

15 28. A process according to any of Claims 1 and 22 to 27 in which at the time of analysis atmospheric pressure is measured.

29. A process according to any of Claims 1 and 22 to 28 in which at the time of analysis location is recorded.

20 30. A technique according to any of the preceding Claims wherein the device for activation of the molecules provides a radio frequency discharge.

25 31. A technique according to Claim 30 in which the excitation device is located within the constant light condition compartment so that excitation takes place in a plane perpendicular to the radiation absorption device(s).

30 32. A technique according to Claim 30 or Claim 31 wherein a metallic object is positioned at the extremity of the constant light condition compartment to direct the radio frequency.

33. A technique according to any of the preceding Claims wherein the detector(s) is a radiation absorbance device(s).

35 34. A technique according to any of the preceding Claims including means for the measurement of the humidity and dew point of the sample and means for determining the atmospheric pressure.

35. A technique according to any of the preceding Claims including means for the measurement of gravity, sound and vibration, velocity and direction.
- 5 36. A technique according to any of the preceding Claims provided with a GPS.
- 10 37. A technique according to any of the preceding Claims wherein the sample may be taken at one location, the scanning and analysis system may be used in the same or another location and the detection signal, either via a remote control or operator, is transferred to another location for magnification, analysis and/or storage or kept in the same location for magnification, analysis and/or storage.
- 15 38. Use of the techniques of the present invention for the detection of gases.
39. Use of the techniques of the present invention for the quantification of gases
- 20 40. Use of the techniques of the present invention for the detection of fluids
41. Use of the techniques of the present invention for the quantification of fluids
- 25 42. Use of the techniques of the present invention in the evaluation of the emissions generated by engine combustion and their interaction with the environment.
43. Use of the techniques of the present invention in the detection and/or quantification of the content of human and animal breath.
- 30 44. Use of the techniques of the present invention in the evaluation of the content of human and animal breath
45. Use of the techniques of the present invention in the evaluation of the content of air and/or the environment.
- 35 46. Use of the techniques of the present invention for comparative studies and/or analysis.

47. Use of the techniques of the present invention to generate markers or signatures.
- 5 48. Use according to Claim 47 to determine problems, diseases and illnesses, diagnosis, individual dosage, designer medication, warnings and alarms, standards and predictions, remedial actions.
- 10 49. The use of an analyser according to any of Claims 2 to 21 to determine an individual breath signature.
- 15 50. The use according to Claim 49 for security and/or insurance purposes.
51. The use according to Claim 49 for personal identification.
- 20 52. The use of an analyser according to any of Claims 2 to 21 for the detection and/or determination of new fluids including gases.
53. The use of an analyzer according to any of Claims 2 to 21 in weather forecasting and forecasting for volcanic eruption and earthquakes.
- 25 54. The use according to any of Claims 38 to 53 in which the sample is taken and scanned in a first location and the results transmitted to a second location.
55. The use according to Claim 54 in which the first location is the home, in an ambulance or at an accident site.
- 30 56. The use according to Claim 54 or Claim 55 in which the second location is a doctor's surgery or a hospital.
57. The use according to any of Claims 38 to 54 in an industrial environment for the detection of gases.
- 35 58. The use according to any of Claims 38 to 54 to determine blood type via a blood and/or breath sample.
59. The use according to any of Claims 38 to 58 in which multiple fluid analyser systems is present in one form.

60. The use according to any of Claims 38 to 59 in which a fluid analyser system is linked to multiple fluid analyser systems or peripheral devices.